Thermo Scientific RadEye SPRD-GN
Personal Radiation Detector

Changing the game in gamma and neutron radiation detection
RIID capability in the palm of your hand

The Thermo Scientific™ RadEye™ SPRD-GN personal radiation detector is the first pager-sized PRD that substantially exceeds the neutron alarm requirements of ANSI N42.48 2008 and ANSI N42.32 2016. With outstanding neutron performance and reliable gamma IDs, the RadEye SPRD-GN may be the only radiation detection tool you will need.

- Gamma detection, gamma ID, and neutron detection in a small handheld pager
- Single detector enables less complex design, superior field reliability, and reduced size & weight
- Neutron alarms in <2 seconds compared to 5 seconds in both the ANSI N42.32 2016 and ANSI N42.48 2008 test procedures
- Patent pending source-less routines for continuous ID stabilization and periodic neutron alignment
- Advanced NBR identifies artificial radiation while minimizing false alarms

“I often work in challenging environments such as over water or in extreme temperatures and need a PRD that I know I can depend on.”

Auto adjust runs continuously in the background providing gain stabilization which enables the RadEye SPRD-GN to operate in harsh and changing environments.
Straightforward, foolproof operation.

- No retraining or relearning for infrequent users
- Quickly guides you through next steps after an alarm
- Simple 4 button design
- Comprehensive data neatly organized and presented on screen

**Configured based on your expertise**

The RadEye SPRD-GN can be configured as a basic PRD with no classification, with simplified ID, or full spectroscopic capability to meet user experience and standard operating procedure.

**Ratemeter**

Can be configured to display dose rate or count rate in the main display

RAD Detected

Immediate classification - Natural or Artificial radiation

If simplified ID is enabled, the unit will automatically begin analyzing the source to identify and classify the radiation. See below.

**Identification and Classification**

Automatically classify and ID gamma radiation after receiving an alarm

- current level for gamma (G)
- percent complete
- distance to source check and current count rate

Alarm being analyzed

MEDICAL
Tc-99m MED 10

INVESTIGATE
Co-60 IND 9

NATURAL
Th-232 NRM 10
Rugged and practical.

- Can be worn in holster or standard service belt
- Small and lightweight
- Long battery life
- Drop resistant to 1.5m
- IP65
- Can be operated in extreme temperatures

“Gamma radiation is a possibility in my line of work. I would prefer not to carry multiple larger instruments to be able to monitor for different types of radiation.”

The RadEye SPRD-GN combines both powerful gamma and neutron detection in a handheld pager.

With over 90,000 RadEye units sold world wide, our first responder, nuclear power and medical customers know first hand the longevity and reliability of the family of instruments. The RadEye SPRD-GN is a next generation detector that reestablises the standard in personal radiation detection.
Detecting artificial radiation utilizing Natural Background Rejection (NBR) Technology

NBR has long set the RadEye PRD apart in the detection of even low levels of illicit radiation, while at the same time reducing false alarms by distinguishing artificial radiation from NORM. The spectroscopic architecture of the RadEye SPRD-GN enables advanced NBR by having more energy bins and intelligent algorithms to correctly identify even complex mixes of artificial radiation from NORM. And the outstanding detector sensitivity of the RadEye SPRD-GN further boosts its NBR performance.

How does it work?
When the SPRD-GN is scanning the environment, NBR strips away naturally occurring radiation from the environment.

Without NBR
• Higher threshold for alarm
• Numerous alarms
• Most due to natural radiation
• Nuisance for operator, may ignore

With NBR
• Lower threshold for alarm
• No false alarms
• Only alerts to artificial sources
• Operator knows to act

The spectroscopic architecture of the RadEye SPRD-GN provides Advanced NBR with more energy bins to identify even complex mixes of artificial radiation from NORM.

Neutron Detection and Gamma Spectroscopy Using One Large Crystal
The RadEye SPRD-GN uses a sophisticated spectroscopic Cs2LYCl6:Ce detector that is both gamma and neutron sensitive to achieve its pager size. The performance of this single “CLYC” detector can only be matched by much larger instruments that incorporate one detector for gamma radiation and a separate He-3 proportional counter tube for neutron detection. The SPRD-GN combines the unique CLYC radiation detection capability with pulse shape discrimination (PSD) to effectively separate the gamma radiation from neutron radiation. More specifically, the neutron background count rate of the SPRD-GN contains true neutron events only which allows the setting of very sensitive neutron count rate alarm levels. Lastly, a continuous reference for fine gain adjustments associated with gamma IDs is accomplished by monitoring the cosmic background neutron peak in the spectrum. This permanent source-less stabilization of the complete system is achieved even over open water where there is an absence of any naturally occurring radioactivity.

The RadEye SPRD-GN’s CLYC and PSD filters provide clear delineation between the gamma radiation of interest (light blue), high energy charged particles typically from cosmic rays (yellow), and neutrons (blue).
RadEye SPRD-GN ordering information

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>4250812</td>
<td>SPRD-GN, includes software for configuring RadEye and spectra download</td>
</tr>
<tr>
<td>4250813</td>
<td>SPRD-GN Kit- includes RadEye SPRD-GN, software, Holster (42506746), Lutetium test adapter (425067071), desktop holder (425067060), USB data cable (4254026), spare batteries, and rugged storage and carry case.</td>
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RadEye SPRD-GN specifications

<table>
<thead>
<tr>
<th>Radiation Detected</th>
<th>Gamma and Neutron</th>
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<tbody>
<tr>
<td>Detector</td>
<td>CLYC (Cs2LiYCl6)</td>
</tr>
<tr>
<td>Energy Resolution (662 keV)</td>
<td>7.0%</td>
</tr>
<tr>
<td>Sensitivity (cps per μSv/h (662 keV))</td>
<td>110</td>
</tr>
<tr>
<td>NBR (Natural Background Rejection)</td>
<td>Advanced with 6 energy windows</td>
</tr>
<tr>
<td>Alarm Notification</td>
<td>Display, LED, Sounder, Vibe</td>
</tr>
<tr>
<td>Dose Rate Range</td>
<td>1 μR/h - 25mR/h (10 nSv/h - 250 μSv/h)</td>
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<tr>
<td>Energy Range (+/- 30%)</td>
<td>60keV - 3 MeV</td>
</tr>
<tr>
<td>Typical ID Time @ 1μSv/h (100μR/h)</td>
<td>~ 5 minutes</td>
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<tr>
<td>Gain Stabilization</td>
<td>Patent pending continuous source-less stabilization</td>
</tr>
<tr>
<td>Neutron Verification</td>
<td>thermal neutrons &amp; fast neutrons</td>
</tr>
<tr>
<td>Neutron Alarm Response</td>
<td>&lt;2 sec vs. ANSI N42.48 2008</td>
</tr>
<tr>
<td></td>
<td>1 sec vs. ANSI N42.32 2016</td>
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<tr>
<td>Thermal Neutron Sensitivity (cps/νn)</td>
<td>4</td>
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<tr>
<td>Designed to Meet Specification</td>
<td>ANSI N42.48 2008</td>
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<tr>
<td>Battery Type</td>
<td>AAA x 2</td>
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<tr>
<td>Estimated Battery Life</td>
<td>~ 120 hrs</td>
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<tr>
<td>Weight including Batteries and Rubber Sleeve (g)</td>
<td>175</td>
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<tr>
<td>Water/Dust Rating</td>
<td>IP65</td>
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<tr>
<td>Drop Distance onto Concrete</td>
<td>1.5m</td>
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<tr>
<td>Wireless Communications</td>
<td>BT4 optional</td>
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<tr>
<td>Wired Communications</td>
<td>USB to IR</td>
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</tbody>
</table>

We offer a comprehensive range of accessories. To see a full listing of accessories visit thermofisher.com/prdaccessories

Accessories

Bluetooth™ battery cover - Transmit data using low power BLE to a compliant mobile device.

RadEye SPRD-GN kit
Lu test kit adaptor for performance checking, cable and docking stationing for detailed analysis of data on a PC.

Holster options
A wide range of holster options are available

Extending pole
Extend the reach of your SPRD-GN

Find out more at thermofisher.com/sprdgn